

## CLAIMS

1. A method to determine the transfer characteristic whereby acoustic signals incident on a microphone system are transformed as a function of their angle of incidence into an electric output signal,

5 characterized in that

the microphone system comprises at least two microphone sub-systems of which the transfer characteristics differently affect said sub microphone-systems' electric output signals as a function of said acoustic signals' angles of incidence and in that said output signals are formed as a function of a mathematical product saturated at a predetermined or predeterminable 10 value, where the ratio of the output signals of the microphone sub-systems constitute one factor in said product.

2. Method as claimed in claim 1, characterized in that the product is saturated at a maximum value.

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3. Method as claimed in either of claims 1 and 2, characterized in that the second factor of the saturated product may assume an arbitrary value other than zero.

20 4. Method as claimed in one of claims 1 through 3, characterized in that the function includes the difference between a constant (A) which, where appropriate, may be adjustable, and the saturated product, preferably the value of constant (A) being at least approximately equal to the value of saturation (B).

25 5. Method as claimed in one of claims 1 through 4, characterized in that the ratio is formed from the amplitudes of the output signals.

6. Method as claimed in one of claims 1 through 5, characterized in that the output signal is formed as the following function

$$S = c_d [A - (\alpha \frac{|c_n|}{|c_d|})_{satB}]$$

5 where

S is the output signal from the microphone system

A is a predetermined or predeterminable signal value

10 |c<sub>d</sub>| is the amplitude of the output signal from a first microphone sub-system of which the transfer characteristic is at maximum gain at one angle of incidence, the characteristic to be formed also being desired to be at maximum gain

|c<sub>n</sub>| is the amplitude of the output signal from the second microphone sub-system

satB is the saturation of the product [ ] at a predetermined or predeterminable maximum signal value B

15  $\alpha$  is a predetermined or predeterminable mathematical product factor.

7. Method as claimed in one of claims 1 through 6, characterized in that the gains of the transfer characteristic of the microphone sub-systems are maximum for acoustic signals substantially incident in opposite directions.

20 8. Method as claimed in claim 7, characterized in that the transfer characteristics are cardioid, preferably hypercardioid.

25 9. A microphone system comprising at least two microphone sub-systems of which the transfer characteristics are different in relation to the direction of signal incidence and of which the output signals are fed to the inputs of a processing unit having an output,

characterized in that

the processing unit includes a weighted ratio-former having a denominator input, a numerator input ?? and a weighting input, where the denominator and numerator inputs are operationally connected to the processing-unit input, where further the weighted ratio-forming unit generates

at its output an output signal which is saturated at a maximum and/or minimum value, said output being operationally connected to the output of the processing unit.

10. Microphone system as claimed in claim 9, characterized in that the output signal from the weighted ratio-forming unit is saturated at a maximum signal value.

5 11. Microphone system as claimed in either of claims 9 and 10, characterized in that an arbitrary, fixed or adjustable weighting factor other than zero is fed to the weighting input.

10 12. Microphone system as claimed in one of claims 9 through 11, characterized in that the output of the weighted ratio-forming unit is operationally connected through a difference-forming unit to the output of the processing unit.

15 13. Microphone system as claimed in claim 12, characterized in that a fixed or adjustable signal is fed to a second input of the difference-forming unit, the value of said signal being at least approximately equal to a saturation value of the saturated output signal from the weighted ratio-forming unit.

20 14. Microphone system in one of claims 9 through 13, characterized in that each of the input signals of the processing unit is fed through magnitude-forming units before being operationally connected to the denominator and numerator inputs resp. of the ratio-forming unit.

25 15. Microphone system as claimed in one of claims 9 through 14, characterized in that the output of the weighted ratio-forming unit is operationally connected to one input of a multiplier unit of which the second input is operationally connected to the output of that

microphone sub-system which is operationally connected to the denominator input of the ratio forming unit and in that the output of the multiplier unit is operationally connected to the output of the processing unit.

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16. Microphone system as claimed in claims 13 and 15, characterized in that the output of the difference-forming unit is operationally connected to one input of the multiplier unit.

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17. Microphone system as claimed in one of claims 9 through 16, characterized in that a time-frequency converter is provided between each microphone sub-system output and each processing-unit input,

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18. Microphone system as claimed in one of claims 9 through 17, characterized in that the characteristics of the microphone sub-systems are cardioid or preferably hypercardioid.

19. Application of the method claimed in one of claims 1 through 8 or of the system as claimed in one of claims 9 through 18.